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ABSTRACT

This study utilizes college student volunteers in a three-week smoking cessation program. The volunteers were given two American Cancer Society brochures about smoking cessation, a guide for a comprehensive plan to quit smoking developed by Glaxo Wellcome, the American Lung Association's Quit Smoking Action Plan, a list of common nicotine withdrawal symptoms and coping strategies, and a smoke-intake weekly monitoring chart. Participants also took part in a discussion of information gleaned from a literature review. Smokers were asked to limit their smoking to every four to five hours and meetings were held for follow-up. Despite the limited number of participants, results show significant reductions in smoking. This type of cessation program appears to be very effective in helping college students reduce their smoking or to quit smoking. The small number of students volunteering indicates that there is little desire for college students to quit smoking. (Contains 29 references and 2 tables.) (Author/MKA)

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Attempts to Reduce Cigarette Smoking Among College Students: A Pilot Study

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Introduction

It is well known to the health care community that cigarette smoking is the largest single preventable cause of death in the United States (Barton, et al., 1982; Compas, et al., 1998; Price, et al., 1998; Wechsler, et al., 1998). It has been estimated that 400,000 premature deaths occur per year in the United States secondary to cigarette smoking (Lewis, et al., 1998).

Ironically, it is estimated that one-quarter of the US population smokes, despite this compelling evidence that cigarette smoking is harmful to one's health (Compas, et al., 1998). Although there has been a substantial decline in cigarette consumption among the adult population in the US, use of cigarettes among the adolescent population has continued to grow (Price, et al., 1998). Since 1993, a disturbing increase in smoking among college students has been observed (Wechsler, et al., 1998). This pilot study was designed to assess the effectiveness of an intensive campus program designed to reduce smoking among college students.

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Factors Promoting Smoking

Barton and his colleagues (1982) found that the factors motivating adolescents to smoke were quite different from those motivating their adult counterparts. Barton et al. (1982) also noted that different approaches are needed at different age levels within adolescence to deter smoking. It is necessary for those wanting to intervene with smoking prevention programs directed towards the adolescent population to understand that much of adolescent health-risk behavior is not planned; not all adolescent behaviors are logical and rational. This can be clearly seen when teenagers make the decision to smoke despite evidence that this behavior has long term ill effects (Gibbons, et al, (1998). Gibbons and his colleagues (1998) found that adolescent smoking behavior is usually an unintended behavior. Consistent with research by Barton, et al. (1992), Stein and her colleagues (1996) found that smoking among adolescents typically fluctuates, especially between early and late adolescence, and that those teens who smoke for peer modeling or experimentation will generally cease smoking as they age. Thus, two programs are needed for the adolescent population pertaining to smoking behavior; prevention for those who may intend to smoke and intervention for those adolescents engaged in unplanned, peer-guided smoking behavior. These programs must take into account the different factors motivating cigarette use in the early adolescent age-group compared to the older adolescent and young adult age-groups.

Ouellette and Wood (1998) defined a habit as a routine way of behaving, even if the habit is senseless or may have harmful effects on the individual. The researchers found that frequency of past behavior directly influenced the strength of habit formation. They also found a relationship between habit and automaticity. Thus, the habit of smoking can develop with repetition and practice in given situations. The result is that the cognitive process that initiates the smoking behavior becomes automatic and requires little attention or thought and can be performed in adjunct with other activities (Posner & Snyder, 1975; Schneider & Shiffrin, 1977). Once an adolescent has initiated and formed the habit of smoking, addiction to nicotine can be a result. This addiction strongly deters a smoker from ceasing smoking behavior. Piasecki, et al. (1998) found that withdrawal symptoms had a profound effect on cigarette dependence and relapse when attempting to cease the habit. Withdrawal symptoms associated with smoking cessation include urge/cravings, irritability, difficulty concentrating, anxiety, depression/dysphoria, impatience, sleeping disturbances and hunger. The manifestations of these symptoms are at the highest point during the first week of smoking cessation and abate within one to four weeks; individuals who smoke reported withdrawal symptoms as a major obstacle to abstinence (Cummings, Giovino, Jaen, & Emrich, 1985).

Researchers have repeatedly observed that smoking intervention programs have very modest effects on immediate and long-term abstinence rates (Price, et al., 1998). Smoking cessation programs have positive effects up to the first six months of treatment, but then the rates of relapse start to become manifest (Wilson, et al., 1990; Becona, et al., 1998; Rosal, et al., 1998). After participation in any given smoking cessation program, the rate of relapse at one year following the program varies from sixty to ninety percent (Becona, et al., 1998; Lewis, et al., 1998; Rosal, et al., 1998; Piasecki, et al., 1998; Compas, et al., 1998).

Determinants of Smoking

According to Evans and his colleagues (1977), the smoking benefits perceived by the adolescent outweigh the health risk factors. According to Evans, et al., this cognition is due to the adolescent's perception that these health risks are associated with the adult and older population. Early adolescents are motivated to smoke secondary to their preoccupation with a desirable social image and peer acceptance (Barton, et al., 1982; Newcomb, et al., 1989; Gibbons, et al., 1998; Erikson, 1963; Stein, 1996; Ouellette & Wood, 1998; Price, et al., 1998). Simmons and his associates (1973) found that early teen smoking is a way to attain an ideal self-image. Since this age period is a time of identification with peer social circles, this age group is motivated to adopt behaviors, such as smoking, to fit in with these social groups and indirectly increase self-esteem. Price and his colleagues (1998) stated that the most important factor in the increase of cigarette use among adolescents remains peer influence and willingness to take risks. Price and his associates also found that experimentation and occasional cigarette use increases the chance of becoming a "regular" smoker.

Motivation for smoking in the adolescent population can be divided into two age frames. Barton and his colleagues' (1982) study of 286 sixth graders and 248 tenth graders evaluated motivating factors that initiated smoking in these two age groups. The researchers found that high self-consciousness and low self-esteem correlated with smoking initiation. Each group was presented with a slide depicting a female and male model with and without a cigarette. The researchers assessed the perceptions the students held towards the smoking versus non-smoking models by asking them to use polar adjective descriptives (ugly /good looking). The sixth graders described the smoking models as tough and wanting to be with the group. Female smoking models were perceived as better looking and more desirous to be friends with. The tenth graders also viewed the female smoking models as better looking, wanting to be in the group, and more interested in the opposite sex. The researchers concluded that for the sixth grade group, smoking initiation was based on social image factors, especially the student's identity concept.

Ironically, this motivational factor diminished as the teen matured. The tenth grade students were more inclined to smoke to establish an image of one who is interested in the opposite sex. Barton and his colleagues also noted a strong correlation between the intention to smoke and if the social image of the smoker was viewed positively by the student. Supporting Barton and his colleagues' findings was a study by Gibbons, et al. (1998). Gibbons and his associates found that health risk behaviors are often performed during social events that would not ordinarily be engaged in when the teenager is alone. The risk behaviors, the researchers found, have social connotations involved that are attractive to the adolescent's social self-image. Gibbons and his colleagues found that when peers engage in smoking behavior and when peers value teens that participate in the behavior, there is an increased risk for initiation of a teen starting smoking as a means of achieving peer acceptance. Smoking is thus an aspect of the teen's identity/self image.

Erikson (1963) noted that adolescents are "preoccupied with social images and identities- their own and others'." Gibbons and his colleagues concluded that adolescent smoking was a response to social opportunities that arose, (for example, teenagers at a party with friends who had cigarettes). The researchers found that availability of cigarettes and willingness to smoke could lead to smoking within the adolescent population, even with little or no previous intention to smoke. Ouellette and Wood (1998) in their research support the concept of smoking initiation as a form of peer identification. The researchers surmised that smoking behavior occurs in response to environmental events and that the behavior involved conscious intent to participate in-group behavior. Ajzen (1991) similarly found that intention to smoke is influenced by an individual's logical reasoning skills, attitudes towards the behavior, social pressure, and the ease of carrying out the behavior.

Newcomb, McCarthy, and Bentler (1989) investigated smoking involvement, academic lifestyle orientation, emotional well being, social impact efficacy, and peer smoking as a predictor of cigarette use among adolescents. The researchers discovered through confirmatory factor analysis that early adolescent smoking involvement was significantly associated with decreased academic lifestyle orientation, decreased emotional well being, increased early adolescent social impact efficacy, increased peer smoking behavior, and increased young adult smoking. Supporting Newcomb and his colleagues' findings was a study by Hu, Lin, and Keeler, (1998). Hu, et al. studied 5,028 teenagers who completed the California Youth Tobacco Survey. The teenagers were then divided into three groups by smoking status: Current smoker, former smoker and nonsmoker. Included in their analysis was age, gender, race, family income and school performance of the respondent. Analysis of the data showed that the older the age of the adolescent, the more likely they were a current smoker and the less likely they would become former smokers. Additionally, students who performed below average were more often current

smokers and less likely to have stopped smoking. Also, teenagers from the highest income group ($75,000) showed higher rates of being former smokers. Finally, below average students with lower household incomes were less likely to quit smoking.

Stein, Newcomb, and Bentler (1996) performed a longitudinal study of 133 men and 328 females, who were recruited in junior high school, and assessed personality traits associated with the smoking adolescent population and those who continued to smoke into young adulthood. The researchers found that early adolescent smoking was positively correlated with cheerfulness, more socialization with peers, and extroversion. As the group was reevaluated across time on these variables the researchers discovered a displacement of the positive qualities associated with smoking. Four years after the study began, cigarette use and depression were positively correlated; cigarette use was negatively correlated with good social relations and minimally correlated with extroversion. These correlations were consistent and substantial as the study progressed over thirteen years. Stein and her colleagues concluded that early smokers initiate smoking for social factors (peer identification) and that those who continue to smoke into adulthood did so for emotional reasons (relief from stress).

Piasecki, Fiore, and Baker (1998) discovered that those individuals who had an atypical course of nicotine withdrawal, show symptoms that continued or were intensified after the standard withdrawal period. They were at high risk for relapse if they began a smoking cessation program. The researchers also found that onset of withdrawal symptoms was enough to motivate individuals attempting to cease the behavior to begin smoking again.

Optimal Smoking Cessation Treatment Strategies

Barton, Chassin, and Presson (1982) found that the use of long term health hazard education as a form of deterring teenagers from smoking had no significant impact on the adolescent population. Supporting Barton and his colleagues' findings was research by Goldman and Glantz (1998). Goldman and Glantz evaluated anti-smoking advertisements and found that youth access, portrayal of short-term effects and long term effects of smoking, and discussion of the possibility of romantic rejection had no impact on the adolescent's intention to smoke. Barton and his colleagues believed that strategies aimed at social image issues that were pertinent to the adolescent population and the influence of these struggles as motivators to smoke need to be addressed. The researchers stated that early adolescents' self-image/identity and group acceptance programs must be addressed in regards to smoking. For middle adolescents, self-image with respect to the opposite sex also needs to be addressed.

Newcomb, McCarthy and Bentler (1989) advocated interventions pertaining to adolescent smoking that aimed at emphasizing the academic lifestyle as a high priority, because during the school

years teenagers are more prone to initiate smoking. Supporting Newcomb and his colleagues were Hu, Lin, and Keeler (1998). Their research concluded that developing academic or remedial classes that are targeted at improving a student's school performance may lead to a reduction in smoking rates within the adolescent population.

Compas and his colleagues (1998) evaluated a multicomponent behavior therapy treatment program for smoking cessation produced by Hill, Rigdon, and Johnson (1993). The study consisted of 82 participants randomly assigned to one of four treatment groups. The first group received behavior therapy, which included information on health risks and benefits of ceasing smoking. Also included in the behavioral therapy were environmental and situational risk factors associated with relapse. The second group received the aforementioned behavioral therapy and also nicotine gum. The third group received the behavioral therapy and physical therapy. The fourth group received only physical therapy. The end result revealed that all participants assigned to behavioral therapy had an overall thirty-two percent abstinence rate. The participants who did not have behavioral therapy had an abstinence rate of ten percent at the end of treatment.

Compas and his colleagues then evaluated a smoking cessation treatment program performed by Stevens and Hollis (1989). The study included 744 adult smokers. All subjects were entered into an intensive four day/two hours per day smoking cessation program that consisted of cognitive and behavioral therapy. Also addressed were withdrawal symptoms, cognitive restructuring and relaxation techniques. Seventy-nine percent of the study population achieved smoking cessation at the end of the sessions. This group was then randomly assigned to three relapse prevention treatment. The first group received relapse prevention skills, the second group received group discussion, and the third group received no treatment. Abstinence rate at one year follow up was 41% among members of the relapse prevention skill group. The discussion group had an abstinence rate of thirty-four percent and the group that received no treatment had a rate of thirty-three percent. Compas and his associates concluded that a multicomponent therapy including cognitive and behavioral therapy in conjunction with nicotine replacement could increase rates of abstinence at and beyond the one-year period.

Supporting Compas and his colleagues' multicomponent program for smoking cessation was a study by Becona and Vazquez (1998). Becona and Vazquez evaluated 72 smokers who attended six one-hour sessions over six weeks that were led by two therapists who were experienced with smokers. The program was comprised of a multicomponent behavioral treatment program, which included a motivational contract signed by the participant, self-monitoring of smoking, information on nicotine, and smoking fading. Information pertaining to withdrawal symptoms and relapse strategies was also presented to the participants. At the end of treatment the abstinence rate was 75%, at a six-month post

treatment the rate was 34.7%, at twelve-months the rate was 29.2%, at twenty-four months the rate was 25%, and at thirty-six months the rate was 23.6%. The researchers concluded that the multicomponent treatment program was effective in achieving abstinence at the one-year level and effective after one year for one-third of the participants in the study. Becona and Vazquez strongly recommended management efforts regarding relapse in addition to relapse prevention information.

Ouellette and Wood (1998) addressed interventions pertaining to risk-habits by considering factors that maintain routinized responses pertaining to the habit. Habits, such as smoking, are prone to be repeated in the future, even if the habit is illogical in nature. Deliberate reasoning usually influences behavior that does not become habitual. Intention is important in regulating habit formation because intention reflects the underlying attitude of the behavior. Intentions can be in conflict with the habit and can thus deter individuals from forming a habit. The researchers noted that with ingrained habitual behavior, new intentions that are strong and motivating are needed to break the old intentions associated with the habit. The paradox of implementing this treatment is that smokers who wish to cease the habit may find that the conscious decision not to smoke requires them to concentrate more on the act of not smoking, thus increasing their concentration on the act of smoking.

Goldman and Glantz (1998) evaluated the effectiveness of anti-smoking messages and anti-smoking advertisements. The researchers found that the media was most effective when used in conjunction with community support groups, higher taxes on cigarette products, and smoking educational programs in schools. The researchers found that the most effective media advertisements were those that took an aggressive stance against the tobacco industry and those where the companies were directly identified instead of using vague pronouns to identify the tobacco industries. The messages conveyed to the focus groups by the advertisements were that the tobacco industries were deceitful, dishonest, and manipulative to try to obtain new customers and make them addicted, so the companies could make more money. The advertisements also exposed the tobacco industry knowledge of the psychological dynamics going on during adolescence; that youth were not really showing independence, but were being manipulated by the tobacco industry to buy cigarettes. Also emphasized in the anti-tobacco advertisements was the effect of second-hand smoke. This proved to be an effective deterrent to cigarette use, secondary to the advertisement showing that smoking endangers others; that those people who choose not to smoke or are exposed to smoking because of age (young children) are having their rights not to smoke impinged upon.

Wilson, Wallston, and King (1990) evaluated the association between smoking cessation, self-efficacy, motivation to quit, and contract framing on smoking reduction. The behavioral treatment applied to their subjects was contingency contracting, which

involved the subjects' making a written agreement that specified the exact behavior to be performed in order to receive a specially selected reward. The wording in the behavioral contracts was varied by presenting it as a gain frame or a gain plus loss frame. The gain frame contract defined the positive consequences of reducing smoking, while the gain plus loss contract included an emphasis on the loss of the positive reward if smoking reduction was not obtained. The treatment program took place over a 12-month period. The participants consisted of 37 males and 33 females, all regular smokers. The individuals were randomly assigned to the contract conditions. Forty-two participants completed the entire study. The results of the study indicated that the majority of smoking behavior change occurred between baseline and three months into the program, suggesting to the researchers optimal levels of self-efficacy and motivation of the participants. After three months these measures stabilized. For smokers with low motivation to quit, combined framing conditions resulted in their smoking significantly fewer cigarettes post treatment compared to similar participants who had the gains contract only. Smokers who were highly motivated to quit smoking did well with the gain contract when compared to those in the gain contract with low motivation.

Lewis, Piasecki, Fiore, Anderson, and Baker (1998) reported the results of a randomized, double blind placebo controlled study comparing three treatments: nicotine patch plus counseling, placebo patch plus counseling, and minimal care intervention. The objective was to assess if the nicotine patch plus counseling increased long term abstinence over placebo or minimal intervention programs, and to identify factors associated with long term cessation after the treatment was completed. The study involved 185 individuals and the participants were randomly assigned to one of the three treatment programs. After the initiation of the patch, a study nurse phoned the participants at 1, 3, 6, and 24 weeks to provide cognitive therapy counseling and motivational support to the individual. Patch compliance and smoking behavior was also evaluated at these times. At the end of the six month treatment program, rates of abstinence were 4.9% for the minimal intervention group, 6.5% for the placebo patch group, and 9.7% for the nicotine patch group. The study showed no significant differences in long term cessation rates.

Rosal, Ockene, Hurley, Kalan, and Hebert (1998) studied the efficacy of nicotine gum on patients who wanted to quit smoking. The Physician-Delivered Smoking Intervention Study consisted of 299 participants (42% male, 58% female). Participants were counseled and offered strategies on smoking cessation. Those participants willing to quit smoking were offered the nicotine gum. The results showed at the end of the study that there was no significant difference in the rate of abstinence between those who had accepted the gum (24%) and those who did not accept the gum (20%) at 6-month follow up. Ironically, what did have statistical significance for smoking cessation was the participation of a female physician in the trial. The

researchers also found that longer and multiple attempts at smoking cessation were better predictors for cessation than desire and social support to quit.

Cinciripini, Lapitsky, Wallfisch, Mace Nezami, and Van Vuakis (1994) studied multicomponent behavioral therapy conjointly with scheduled smoking reduction. Scheduled smoking reduction was defined as a three week process with the participant gradually reducing their nicotine intake and thus easing withdrawal symptoms after the individual stopped smoking. In this treatment, the intake of nicotine is regulated by time as opposed to the individual urges or personal situations associated with cigarette consumption. The results of the researchers' study showed a forty-four percent abstinence rate compared to an eighteen percent abstinence rate with a nonscheduled, reduced smoking group at one year follow up.

The current study investigated the effectiveness of the scheduled smoking reduction treatment plan, as defined above, in combination with a multicomponent behavioral program (including coping with withdrawal symptoms and relapse prevention strategies) in helping smokers who volunteered for a smoking cessation program, drawn from a small, liberal arts undergraduate institution.

Method

Participants

College students volunteered to participate in a three-week smoking cessation program, which was advertised throughout campus. The program was offered both in a group setting at a counseling center in a campus building, and also in an individualized, confidential format with a student-researcher meeting with participants at their convenience. The individual format was provided to accommodate the needs of those who were either unable or unwilling to attend the program when offered at a counseling center in a campus building.

Procedure

At the start of the program, an informed consent form was signed by each participant outlining the basis of the study. The participants then completed a survey on determinants of smoking, familial patterns, and feelings while smoking. A student researcher interviewed each participant to evaluate current smoking consumption and assess reasons the individuals wanted to quit.

The participants were given two brochures published by the American Cancer Society to read on their own as they felt necessary. The first pamphlet, entitled "Commit to Quit" (1998), discussed three questions for smokers to ask themselves as they prepare to quit smoking. The next pamphlet, entitled "Smart Move! A Stop Smoking Guide", outlined the positive benefits of quitting, former smoker success stories, and guides to staying clean.

A comprehensive plan to quite smoking developed by Glaxo Wellcome (1997) was handed out to the participants; this guide

was prepared by Michael Fiore, MD, Director of the Center for Tobacco Research and Intervention at the University of Wisconsin Medical School. This packet consisted of strategies to quit smoking, ways to cope with withdrawal symptoms, cognitive reasoning skills helping one deal with smoking trigger situations, and a reward system. Participants were guided through the packet and asked to share some of this information; it was highly encouraged that participants later fill out this packet for self-motivation.

The American Lung Association's Quit Smoking Action Plan (1998) was given to participants providing them with a plan to prepare for smoking cessation, nicotine replacement options, and information about possible prescription medications available to aid in smoking cessation. Also, this provided information pertaining to support groups available on smoking cessation. It was at this point that the participants were informed that they could phone the psychology student aiding them in their smoking cessation whenever they needed any extra support.

A list of common nicotine withdrawal symptoms and withdrawal symptom coping strategies (Morton, 1989) was given to the participants. These coping strategies were grouped into relaxation, distraction, rethinking, problem solving, self-support, and protection methods. Each section was discussed with the participants to help them determine those methods that they were most likely to use and to permit them to ask any questions regarding these strategies. Following this participants received a short list of the positive benefits one gains when one quits smoking.

A brief discussion of information gleaned from a review of the literature took place. Next, any questions about the material given out or facts stated by the researcher were answered.

A smoking-intake weekly monitoring chart was given to the participants to fill out for the first week of the program. On this log, they were asked to state the brand of cigarette consumed and length. In addition to this, participants were asked to write in the log each time they smoked, indicate the time of day, situation surrounding the smoking behavior, and number of cigarettes smoked within each situation.

Treatment

No reduction in the baseline amount of cigarettes smoked was to occur in the first three days at the start of the program. During a mid-week discussion between researcher and participant, participants were asked to begin scheduling their smoking for every four hours, beginning the fourth day of the first week.

At the end of the first week, another brief meeting was held between participant and researcher. The completed smoking log was collected, and the log for the second week was distributed. Smokers were again asked to limit smoking to every four to five hours, depending on their individual abilities. Another mid-week discussion ensued to monitor the participants' progress. During

this meeting, they were guided to smoke every five hours and limit the number of cigarettes smoked each time (i.e., no more than two cigarettes every five hours).

A final brief-meeting was held before the last week of the program. The participants were encouraged to continue cutting back on cigarette consumption and to extend the amount of time between smoking, until no cigarettes were consumed.

TABLE 1

		Mean	N	Std. Deviation
Pair 1	BASE	7.4444	9	5.0498
	SS	5.7995	9	4.2467
Pair 2	BASE	7.4444	9	5.0498
	RS	3.5658	9	3.5819
Pair 3	RS	3.5658	9	3.5819
	SS	5.7995	9	4.2467

TABLE 2

		Mean	Std. Deviation	t	df	sig. (2-tailed)
Pair 1	BASE - SS	1.6449	1.9179	2.573	8	0.033
Pair 2	BASE - RS	3.8787	4.0929	5.843	8	0.022
Pair 3	RS – SS	-2.2338	3.9781	-1.685	8	0.131

Results

A paired sample *t*-test was conducted to evaluate whether there was a significant difference between the number of cigarettes smoked on baseline, scheduled smoking, and reduced/scheduled smoking days. The results, as shown in Tables 1 and 2, indicate the mean number cigarettes smoked on baseline days (M=7.44, SD=5.05) was significantly higher than cigarettes smoked on scheduled smoking days (M=5.80, SD=4.25), t (8)=2.57, p=0.03. Another paired samples *t*-test indicated that the mean number cigarettes smoked on baseline days (M=7.44, SD=5.05) was significantly higher than number smoked on reduced/scheduled days (M=3.57, SD=3.58), t (8)=2.84, p=0.02. Lastly, results from a paired samples *t*-test showed that the number smoked on scheduled smoking days (M=5.80, SD=4.25) was not significantly higher than number smoked on reduced/scheduled days (M=3.57, SD=3.58), t (8)=-1.69, p=0.13).

Discussion

Despite the limited number of subjects recruited for this study, significant reductions in smoking were found during both the scheduled and reduced scheduled phases of the treatment. This type of cessation program appears to be very effective in helping college students reduce their smoking or quit smoking. The small number of students volunteering indicated that there was little desire for college students to quit smoking, whether they participated in a group or individualized program.

The results of this study were in concordance with the Cinciripini et al. (1994) study, which used a non-student population. In the future, it is recommended that this type of cessation program along with innovative strategies for reaching out to college student smokers may decrease the size of the student smoking population.

References

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Process, 50, 179-211.

American Lung Association. (1998). Quit smoking action plan. (National Publications). New York: New York.

Barton, J., Chassin, L., & Presson, C. C. (1982). Social image factors as motivators of smoking initiation in early and middle adolescence. Child Development, 53, 1499-1511.

Becona, E., & Vazquez, F. L. (1998). The course of relapse across 36 months for smokers from a smoking-cessation program. Psychology Reports, 82, 143-146.

Cinciripini, P. M., Lapitsky, L.G., Wallfisch, A., Mace, R., Nezami, E., & Van Vunakis, H. (1994). An evaluation of a multicomponent treatment program involving scheduled smoking and relapse prevention procedures: Initial findings. Addictive Behaviors, 19, 13-22.

Compas, B. E., Haaga, D. A., Keefe, F. J., Leitenberg, H., & Williams, D. A. (1998). Sampling of empirically supported psychological treatments from health psychology: Smoking, chronic pain, cancer, and bulimia nervosa. Journal of Consulting and Clinical Psychology, 66,1, 89-112.

Cummings, K. M., Giovino, G., Jaen, C., & Emrich, L. J. (1985). Reports of smoking withdrawal symptoms over a 21-day period of abstinence. Addictive Behaviors, 10, 373-381.

Erikson, E. (1963). Childhood and society. New York: Norton.

Evans, R. I., Hansen, W., & Mittlemark, M. B. (1977). Increasing the validity of self-reports of behavior in smoking in children investigations. Journal of Applied Psychology, 62, 520-523.

Gibbons, F. X., Gerrard, M., Blanton, H., & Russell, D. W. (1998). Reasoned action and social reaction: Willingness and intention as independent predictors of health risk. Journal of Personality and Social Psychology, 74,5, 1164-1180.

Glaxco Wellcome. (1997). Plan to succeed workbook. Research Triangle Park: North Carolina.

Goldman, L., & Glantz, S. A. (1998). Evaluation of anti-smoking advertising campaigns. JAMA, 279, 10, 772-777.

Haber, A. (1998). Interview and anti-smoking slides.

Philadelphia: Pennsylvania.

Hill, R. D., Rigdon, M., & Johnson, S. (1993). Behavioral smoking cessation treatment for older chronic smokers. Behavior Therapy, 24, 321-329.

Hu, T., Lin, Z., & Keeler, T. E. (1998). Teenage smoking, attempts to quit, and school performance. American Journal of Public Health, 88, 6, 940-943.

Lewis, S. F., Piasecki, T. M., Fiore, M. C., Anderson, J. E., & Baker, T. B. (1998). Transdermal nicotine replacement for the hospitalized patient: A randomized clinical trial. Preventive Medicine, 27, 296-303.

Morton, P. G. (1989). Health assessment in nursing. Springhouse, Pennsylvania: Springhouse Corporation.

Newcomb, M. D., McCarthy, W. J., & Bentler, P. M. (1989). Cigarette smoking, academic lifestyle, and social impact efficacy: An eight-year study from early adolescence to young adulthood. Journal of Applied Social Psychology, 27, 41-57.

Ouellette, J. A., & Wood, W. (1998). Habit and intention in everyday life: The multiple processes by which past behavior predicts future behavior. Psychological Bulletin, 124, 1, 54-74.

Piasecki, T. M., Fiore, M. C., & Baker, T. B. (1998). Profiles in discouragement: Two studies of variability in the time course of smoking withdrawal symptoms. Journal of Abnormal Psychology, 107,2, 238-251.

Posner, M. I., & Snyder, C. R. (1975). Facilitation and inhibition in the processing of signals. In P. M. A. Rabbit & Dornic (Eds.), Attention and Performance V (pp. 669-681). London: Academic Press.

Price, J. H., Beach, P., Everett, S., Telljohann, S. K., & Lewis, L. (1998). Evaluation of a three-year urban elementary school tobacco prevention program. Journal of School Health, 68, 1, 26-31.

Rosal, M. C., Ockene, J. K., Hurley, T. G., & Hebert, J. R. (1998). Effectiveness of nicotine-containing gum in the physician delivered smoking intervention study. Preventive Medicine, 27, 262-267.

Schneider, W. & Shiffrin, R. M. (1977). Controlled and automatic human information processing: I. Detection, search and attention. Psychology Review, 84, 1-66.

Simmons, R. G., Rosenberg, F., & Rosenberg, M. (1973).

Disturbances in the self-image of adolescence. American Sociology Review, 38, 553-568.

Stein, J. A., Newcomb, M. D., & Bentler, P. M. (1996). Initiation and maintenance of tobacco smoking: Changing personality correlates in adolescence and young adulthood. Journal of Applied Social Psychology, 26, 2, 160-187.

Stevens, V. J., & Hollis, J. F. (1989). Preventing smoking relapse, using an individually tailored skills-training technique. Journal of Consulting and Clinical Psychology, 57, 420-424.

Wilson, D. K., Wallston, K. A. & King, J. E. (1990). Effects of contract framing, motivation to quit, and self-efficacy on smoking reduction. Journal of Applied Social Psychology, 20, 7, 531-547.

Wechsler, H., Rigotii, N.A., Gledhill-Hoyt, J., & Lee, H. (1998). Increased levels of cigarette use among college students: A cause for national concern. Journal of the American Medical Association, 280, 19, 1673-1678.